

THE LEISURE HOUR

A FAMILY JOURNAL OF INSTRUCTION AND RECREATION.

No. 412.]

THURSDAY, NOVEMBER 17, 1859.

[PRICE 1d.]



THE BIVOUAC IN THE BUSH.

THE CAPTAIN'S STORY:

OR, ADVENTURES IN JAMAICA THIRTY YEARS AGO.

CHAPTER XV.—THE JOHN CROW.

I AWOKE long before daylight; I could not sleep, so got out of bed, and sat by the open window, watching for the first streak of light in the east. Ha! there is a streak of light at last—the blushing morn with rosy—hem! I haven't time to be poetical,
No. 412. 1859,

so I slip into my clothes, and rush down-stairs as fast as possible.

The rest of the party soon joined me.

“Now then!” sung out Mat Rington, who was thoroughly in his element, “now then, boys, toss off your coffee and let's be off.”

The coffee was scalding hot, but we managed to swallow it somehow or other, and off we were.

We might have ridden to the foot of the moun-

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tains, which would have saved us three or four miles' walking, but there was a short cut through the cane fields, and so we decided in favour of footing it.

Besides our four selves, our party consisted of Nim, Archie, Cupid, Mat Rington's man Joe, and the two maroon guides—ten of us in all; divided amongst the men were our four Spanish hammocks, four blankets, and provisions consisting of bread, hard eggs, and jerked hog; besides a demi-john of brandy for "massa," a ditto of rum for themselves, and a third to be filled at the last stream of water we should pass. "Jerked hog" is the name given to the flesh of the wild hog prepared by the maroons: the process of curing I know not, but this I know, that it is most excellent eating, neither salt nor hard, but tender, juicy, and of a smoky, peculiar flavour.

We passed by the clump of bamboos, associated with Cumba and "song." I looked for her in vain; there were many "field hands" of both sexes at work a short distance off; she might be amongst them, but I would not believe it; I chose to think of her as I had seen her, singing and laughing.

We crossed the river over some broad stepping-stones a little lower down, and an hour and a half's walk at a smartish pace, through waving fields of cane and Indian corn, brought us to the foot of the mountain, and the edge of "the bush."

In we plunged for a few yards, to gain the shelter of the trees; then, throwing ourselves down under their grateful shade, we doffed our hats, wiped our brows and looked around us.

"There!" said Mat Rington, "so far so good; we have crossed the plain before the sun has had time to burn us much; he may blaze away now: we shall be under cover for the rest of the day."

This was pleasant to hear: the way might be, and certainly would be, rough, steep, and fatiguing; but what of that, compared to the fierce tropical sun beating down upon one's brain.

Once more we were *en route*, the maroon guides leading the way; as we plunged deeper and deeper into the forest, the trees increased in size and in variety. There were some giants, with smooth, rounded, symmetrical trunks, rising to the height of one hundred feet and upwards, without a branch or a limb to break the stately grandeur of their towering stature. Others, dwarf palms, tree ferns, and the like, shaggy, hirsute, thorny, with enormous fan-shaped leaves, broad, smooth, and shiny; or feathery, spiky, prickly, deeply serrated, and far-spreading, grew around in all directions, and in every conceivable attitude: while, to enhance the strange and singular beauty of the scene, innumerable creepers and parasitical plants hung festooning down from the lofty branches of the huge forest trees. The cordage and elaborate tracery of the wild vine were conspicuous amongst many others whose names I now forget. Those famous riding and walking-sticks, well known in Jamaica by the name of "supple-jacks," are cut from the wild-vine.

The nature of the ground varied considerably as we advanced; it was not all up-hill work: on the contrary, we made several rapid descents into ravines, with a stream leaping and brawling at the

bottom; then up again the opposite side: in fact, we crossed several small valleys, as we wound our way over the lower ridges of the John Crow; but whether valley, ravine, or mountain side, it was still "the bush;" the dense forest was around us; and well for us that it was—well that we had a thick, impervious screen between our heads and that globe of fire, whose rays every now and then darted down upon us, whenever they could get a chance, like a flash from a burning-glass.

About one o'clock Mat Rington called a halt: we were all glad enough to obey the order; the place was selected with the eye of an artist—I do not mean of a pictorial artist, though in truth the spot was picturesque enough;—but, in the present instance, a less noble art than that of painting had been consulted in the choice of our halting-place, namely, the art of eating, drinking, and resting, with, considering the circumstances, the greatest possible amount of comfort.

One of the aforesaid brawling brooks was at our feet; a clump of wild plantains and palmettoes, whose immense thick leaves sheltered us as effectually from the raging sun as the firmest shingle roof could have done, flourished most luxuriantly and opportunely upon a green velvety slope of soft grass: there we stretched our weary limbs. "Just one hour we will stay here; we can't afford more; we have a deal to do yet before dark. Come, Joe, look alive! put that demi-john down here; cool it in the stream; you may fetch us a few cups full of that cool water; and Joe, mind you fill the other demi-john from the brook, the last thing before we start. Hullo, Nim, what have you got there?"

"Jerked hog, Massa Rington, sa; an' dis here am egg sa, hard egg, an'—hi, Archie! bring de oder ting—all de ting! hi, you, oo Coop! (meaning Cupid), what for you oo drop de ting?"

Away ran Nim back to the provision basket, where the two boys were apparently doing as much harm as good; pretending to unpack, but in reality overhauling the contents as much for their own amusement as for our advantage.

Nim soon set things to rights: a cuff here, and a kick there—the negroes were not particular with one another—accompanied with incessant chattering and laughing, two indispensable accompaniments to a black colloquy, speedily effected the desired object, namely, the display before our hungry eyes of the viands we longed for.

It was highly amusing to hear Nim ordering those two boys about, while they, grinning from ear to ear, kept making mistakes, evidently on purpose, ducking every now and then, to escape the blows from Nim's sledge-hammer fist, made, however, more in fun than anger. The best of it was, both the lads understood the matter in hand far better than Nim himself, Archie having laid many a table at Running Water, and Cupid having waited at mess daily for months past; but these qualifications were entirely overlooked by the arbitrary Nim.

"Lebe dat 'lone, Coop—bring dese 'long here: put um down 'long side dese yam—hi! you oo, Archie! you no do notin—warra for you no work? tan away, you no good—warra for you push, you!"

take dat (aiming a blow at Cupid); berry well—tan you dar nex time!"

"I 'pose I know how to put ting 'fore genelman. I put ting many time more 'fore genelman dan you hab, Nim," urged Cupid.

"You know notin—notin tall—nebber did—it all talke, talke, talke wid you—tan away," was all the answer vouchsafed by Nim.

In the mean time Joe had brought us some deliciously cool water from the brook, and, every thing being ready, we set to work with a will.

Having slaked our thirst and appeased our hunger, we, with our backs against the friendly plantains, enjoyed ourselves to our heart's content.

I could not believe that our hour was passed, when Mat Rington, starting to his feet, called out, "Time up, gentlemen;" but it was so; and we had nothing for it but to obey the signal. Our goods were soon on the men's backs again, and away we went. The path now led in a zig-zag direction up a precipitous ascent; we were getting pretty high up the ridge, and the air was sensibly cooler. Flocks of parrots occasionally flew screaming by, and, alighting in the trees a little way ahead, kept up an incessant chattering, till our approach caused them to take a fresh flight. Many other smaller birds there were, of endless variety, some with beautiful plumage; but we were too much engaged in making progress to take much notice of them. We passed several places where wild hogs had been, as was evident enough by the rooting up of the ground; and once or twice we came upon a wet clayey spot, where the animals had wallowed and rolled, and probably slept; their foot-prints in plenty were about those soft places; but we saw not the beasts themselves, and had no time to look for them. Had time been no object, I really think we should have come upon a hog *in propria persona*, for my dog Tom—a white terrier with a dash of the bull in him, which I brought from England, and which, as a dear and faithful friend of mine, I ought to have introduced to the reader long ago—sniffed about very eagerly at one of the aforesaid hog-troughs, as they were called, and suddenly dashed away into the bush, giving tongue vehemently, as was his wont when on a scent. I was obliged to call him off, and had great difficulty in getting him back, for he was a determined fellow, and a monstrous powerful dog too, afraid of nothing; if he had come up with a hog, he would have seized him to a certainty, and perhaps have been killed for his pains. Poor old Tom! thy faithful, brave, loving nature might shame many a "proud son of man, unknown to glory but upheld by birth," and truly thou wert

"——— in life the firmest friend,
The first to welcome, foremost to defend."

But I must to my tale, or we shall never surmount this rugged ridge. It doesn't do to moralize in the midst of "the bush," with the sun getting low, and no preparation for the bivouac made; as well stop and have a hog hunt at once. And so on we toiled, stoutly and sternly, the path getting ever steeper and rougher as we ascended. Few words were spoken; we had no breath to spare in vain talk, or in wise talk either. It was toughish work

that last hour and a half; we had been more than twelve hours at it, with only one hour's rest, and that over ground which, by no stretch of ingenuity, coupled to a due regard to truth, could be denominated other than that of a rugged, precipitous, and most fatiguing character; I was, therefore, not at all sorry to hear one of the guides say, "Sun berry low, Massa Rington; must 'top an' make hut for massa."

"All right," he replied; "good halting-place this, eh?"

"Berry good, sa; plenty big leaf, plenty sofe tree; soon make house for massa, yar."

"What does he say?" I asked, for I couldn't understand him.

"He says what is true enough, that we must halt here, and build our hut for the night; it will be dark in an hour, and it will take us that to make ourselves snug."

"Yes; but what did he say about trees and leaves?"

"Oh! soft trees and big leaves; why, they are the very thing to make a hut with in the shortest possible time. See! the place is full of tree ferns, and different species of the palm tribe, especially the thatch palm,* all soft wood and big leaves—look!" He took a cutlass from one of the men, and with one blow cut sheer through a thatch palm as big round as a man's leg. "Now, then, strip off the leaves from that fellow, one of you, and set to work with a will, for we have no time to lose," said Mat. "Nim and Joe, you build the hut; we will get the materials for you," he added, as, armed with his cutlass, he commenced slashing at the succulent stems which grew in profusion around us.

Harry, Jasper, and I seized each a cutlass and followed suit, Cupid and Archy stripping off the leaves and carrying them to Nim and Joe. The two maroons had disappeared in the bush, but soon returned with four straight poles about eight feet in length; these were of harder and firmer wood than the palm tribe, and were intended for the four corners of the hut; they had also their arms full of (what I really took at first, as they passed close by where I was at work, for string and cordage) withes of the wild vine; they threw down their loads, and plunged again into the bush to collect more poles and fresh bundles of withes.

We had soon cut down trees enough for our purpose, and we returned to the builders, staggering under piles of tree fern and palm leaves.

The framework of the hut was already up. It consisted of poles from four to five feet apart, extending round an area of about fifteen feet square. Strong withes were fastened from pole to pole, extending along two sides, across the back, and over the roof: the front of the hut was left open; the withes were placed about two feet asunder, were wound many times round the poles, and fastened firmly and strongly to them. The thatching of the hut was simply and expeditiously performed. The enormous fan-shaped leaves of the

* So called because, owing to its enormous leaves, it is used by the negroes to thatch their houses.

thatch palm were laid upon the rafters of wild vine, to which they were tied with thinner withes of the same tough material; the sides and back were covered over precisely in the same way; and thus, in the short space of one hour, a hut was erected, fifteen feet square and seven feet in height, capable of resisting any sudden gust of wind, and perfectly impervious to rain, even the rain of the tropics, overwhelming though that is, in its profuse violence.

The shades of evening fell upon us as the fourth hammock was slung within the hut; the land-breeze had set in, and the air was quite chilly. I began to feel absolutely cold in my light jean jacket and duck trousers, especially after the heat of our day's march, and the exertion of hacking and hewing amongst the palms. A cold air never seems so cold as when one has been over-heated and over-tired.

I quite longed for a fire, but I was ashamed to say so: it seemed ridiculous. Jasper was not so scrupulous. "I say, General Mat," he called out, "a bivouac isn't half a bivouac without a fire; ain't you going to give us one?"

"I should rather think so; what do you suppose the front of the hut was left open for? not to let the wind in, or the mosquitoes either, though we shall have a taste of both, probably, before the night's out. Ah! here they come; do you hear them?—a perfect swarm. Look sharp, Joe, and light that fire," he called out, "or we shall be eaten alive."

"Did we hear them?" I should think so, and feel them too: there was no mistaking their humming, singing noise; they swarmed around our heads, and settled in myriads upon our hands and faces: even I, who had hitherto set mosquitoes at defiance, was overpowered by numbers, and forced to acknowledge that they did bite rather sharper than was agreeable. As for Harry and Jasper, they started up from a heap of palm leaves, on which they had comfortably ensconced themselves, and danced about the hut like people bewitched, slapping their faces, and stamping their feet with the most ludicrous energy. Mat Rington was, like myself, pretty nearly mosquito proof, and we two had quite a pleasant little laugh at the very amusing and mirth-inspiring contortions of our friends.

And now a great fire burnt up briskly in the open space in front of our hut: dead wood there was in plenty all around; a sufficient quantity had been collected to kindle into a good blaze, and then the succulent stems and fleshy leaves of the dwarf palms had been piled on to the burning mass. This smothered the flame for a bit, and caused a dense smoke, several puffs of which were speedily wafted by the ever-shifting currents of air into the hut, and quickly disposed of the mosquitoes. They cannot abide smoke of any sort, especially smoke of such a pungent, acrid character as that from live wood; and such moist, juicy wood too. We were forced into the open air as well as the mosquitoes; but when the flames dissipated the smoke, we returned, which they did not—not, at least, in quantities beyond the powers of a cigar to make them keep their distance.

This was my first night in "the bush," and I ought to have a great deal to say about it; I feel that I ought. The strange noises that I must have heard—of insects, of reptiles, of birds, or of beasts; again the sudden cessation of every sound—the awful stillness of the primeval forest—broken at intervals by the moaning of the wind in the high tops of the stately trees; and these stately trees themselves, whose huge branches glimmered in the pale light of the moon, (it *was* moonlight,) as they stretched upwards and across in graceful, symmetrical, but colossal proportions, have I nothing to say of these? nothing of Nature's architecture? of her lofty pillars, her living columns, her mighty domes, her gigantic arches, shaming the pigmy efforts of man, dwarfing into insignificance the grandest cathedral ever raised by mortal hands! have I nothing, I repeat, to say of all this?

Alas! nothing, not a word, not a syllable; for I saw nothing, I heard nothing. As far as my recollection serves me, I will impart to you, oh reader, all I remember of that eventful night: I shall sink in your estimation by so doing, I feel that I shall; but truth must not be sacrificed even for your favour. Know, then, that I finished my supper, and then turned into my hammock, being as tired as a dog, fell fast asleep in about five minutes; and thus I passed my first night in "the bush."

FROM THE TOP OF THE MONUMENT.

CLIMBING to the top of the Monument, in the afternoon of a hot August day, is not the most delightful illustration of the "excelsior" movement that could be thought of. The man who keeps the door and accepts the fourpences is evidently of that opinion, and he lets us know, by the expression of his face, at least, as he takes our tribute, that he considers his end of that big post, in the snug box below, much preferable to that other end towards which we are bound, up there between the clouds and the chimney-pots. Phew! how hot it is in this stone pipe, and how dark! 'tis lucky there is no chance of losing one's way, and that all we have to do is to go on cork-screwing upwards, sure of coming out *ad auras* some time or other. But lo! here comes a glimmer of daylight through a slit in the fluting; and in good time, to relieve our labouring lungs, there comes a breath of air, albeit mingled with smoke, and with the acrid gases, so much worse than smoke, from the now level chimney-flues. On we go again—round and round, and round, until the tall column seems to be going round too, and we can hardly persuade ourselves, as we come out into the sunshine on the summit, that it is not performing a two-handed reel with its great contemporary and portly *vis-à-vis*, the round dome of St. Paul's.

But no, it's all right—firm as a rock, and we may look around us in security and peace. The first impression is a singular one: like the Stylist of old, we happen to be alone on the top of our pillar, and a feeling of hermit-like seclusion comes over us; we fancy ourselves far away from the world, and are half inclined to congratulate our-

selves that we have at length cast it so far beneath our feet; perhaps we flatter ourselves that we have risen superior to it and can despise it. There it is, ever so far down, fussing, and roaring, and racketing as it always does; but the voice of its tumults barely reaches us here, and sounds in our cloud-capped ears like the confused and indistinct murmur of the sea-surge beating on some distant shore. But this feeling does not last for many minutes; the serious mood is obliged to give place to one the very reverse of serious. We are struck with something comical in that vast congregation of chimney-pots gathered around us, as if they were doing us homage; they seem to represent so many phases of humanity—long and short, corpulent and thin, straight and crooked, blatant and wheezy, stertorous and asthmatic, sound and crippled; and so many grades of society—the rough, the ragged, the begrimed and smutty, the patched and bareheaded, all mingled together with the stuccoed, and corniced, and battlemented, the cowed and whirligigged, the mitred and the crowned; and all fussily contributing at once the same vapid offering of empty smoke, for which nobody thanks them. Then, look at the undulating miles of tiled roofs on a thousand different levels; the high ridges and the low ridges, the sleek blue slates, the leaden flats, and the *voûtes* of glass, alternating at rare intervals with the shimmer of water, where some fearful citizen has roofed his office or warehouse with a hanging lake, and laid the New River under contribution instead of the pantler.

Looking away beyond the roofs eastward, we follow the mud-brown glitter of Father Thames, down among his forest of shipping in docks and Pool, as far as Greenwich and beyond. There, a triton among the minnows, a leviathan among the sea nymphs, sits the "Great Eastern," now pluming her wings for a flight across the world of waters, which she will have made long before this paper is in the hands of its readers. We count her six masts, and just sight one or two of her funnels; but of her vast hull, destined perhaps to be the home of ten thousand men, we can judge only by the spread of her rig. The mid channel of the river teems with life and activity; steamers, crammed with human faces from stem to stern, are darting up the stream and down the stream; heavy, deep-laden lighters are clawing their tide-ward way with single oars; lively little wherries are shooting hither and thither; and shining, lumpish Dutch doggers, moored off the banks, float motionless without a symptom of life on board. Where the river broadens westward, the passage-boats are plying rapidly, now shooting out from under London Bridge, now disappearing as suddenly under the wide sweeping arches of Southwark. The bridge of London, which lies in flat perspective beneath us, presents a spectacle which, luckily for the convenience of the city, is not of too frequent occurrence. Seven years of grinding traffic have worn out its stone coat of mail, and it is undergoing the ceremony of fitting on a fresh one. The western half of the causeway is ripped up for its whole length, and, under the hands of

some five hundred paviers and road-masons, is being pitched and plastered anew. The other half is all that is left available for the never-ending concourse of wheels which traverse it hour by hour. It is inevitable that a good proportion of them should forego the transit: the 'busses are especially consigned to this fate, and forbidden to cross the bridge southward, though they may return northward as often as they please. As one result of this arrangement, Monument Yard is transformed, for the nonce, into an omnibus station, the 'busses from the north of the city stopping there, to the confusion of many a traveller in haste to catch the train to Brighton and the south coast. We can see the indignation of the good people thus suddenly pulled up, if we cannot hear it, even from this exalted point. And we can see something else too; for lo! as yon elderly gentleman, irate at the short-coming of the 'bus, is clamouring for a cab, that sleek youth so civilly tendering his services eases him of his pocket-book, and nobody is cognizant of the robbery save we ourselves. "Stop, thief! stop thief!" but, pshaw! one may as well bawl to the man in the moon. There! the villain pickpocket has turned the corner down Thames Street, and is off out of sight, while the old gentleman is yet ignorant of his loss.

What a continuous crowd pours along the streets, and seen from this height, what a curious figure some of them cut. The population of Gracechurch Street are foreshortened into moving dots, all hats and boots; and whether that aproned waiter from the tavern yonder, who is crossing the way so deliberately, measures four feet or six, it would be impossible to say, unless somebody would lay him sprawling to show us his length. The horses look still more absurd than the men; one does not see that they have any legs at all, and in this perpendicular perspective they show like huge grubs hugging the ground, and making their rapid way by some miraculous power of impulsion.

Midway in the throng, whose opposing currents pass him in either direction, stands, like a snag in a troubled stream, yon wooden-legged crossing-sweeper. He is a sort of rock in mid-channel, which every one making the passage has to weather as he best may. The doffed hat is perpetually gyrating to all points of the compass, to catch the coppery spray, and it revolves with a velocity sometimes marvellous to witness, and impossible to a broomster who should have the misfortune to want a wooden leg for a pivot. The good man does his sweeping under difficulties, by fits and starts, as the tumult from time to time relents, and by very little bits at intervals, just as Michael Angelo did his frescoes in the Vatican; and, from the nature of the position he occupies, he is much oftener engaged in stimulating the public sympathies than in cleansing the public ways.

A little to the right, where King William Street trends up towards the Mansion House, stands the sailor king on his pedestal, which forms a little island of refuge in the centre of four surging channels, each perilous in the extreme to bewildered pedestrians. Look at that countryman in buff and corduroys, and note what desperate attempts he

makes to land his sturdy legs on the central island—how he ducks away from the advancing omnibus, tails on to that lumbering waggon, sidles along in the wake of the parcels delivery cart, and is, after all, brought up and dashed back again to the kerb by that hansom cab. Now he tries it again, and this time he succeeds; and, having satisfied himself, by sundry outside fingerings of his side and breast pockets, that their contents are in the right place, he plunges again into the current, and steers boldly for the bridge. It is the women, however, who mostly affect the island of refuge; some of them, you may observe, having once landed on its friendly coast, are in no hurry to trust themselves again amid the dangers they have passed, and will wait, if it be for half an hour, until the coast is comparatively clear. We would whisper to them, if we were down there instead of up here, "Take care of your pockets! take care of your pockets!"

All the while that we have been up here on the look-out, there has lain, curled up on the door-step of a house beneath us to the left, a sun-burnt, flaxen-headed, bare-footed boy of twelve or thirteen, sound asleep amidst the racket and din. Now he moves and wakes up, and gets upon his legs, refreshed from his stony couch, to recommence his wanderings. Do not be too sure that he is a worthless vagabond. Homeless and houseless as he is now, there, for aught you know, walks London's future Lord Mayor, or merchant-prince, or millionaire of the Exchange. Such as he is now, were not a few who at this moment possess broad lands of their own, and "stand before kings." See, the lone Ishmael draws a crust from his pocket; he has husbanded it against the moment of hunger, and heartily he eats. That done, he is off in search of a job down among the alleys of Thames side. Be propitious, O fortune—*fer opem inopi*, and send work to the willing hand.

Talking of work, there sits at yonder garret window, bending over a small table, a head and shoulders and inky hand of a most determined scribe, who for the last two hours has never moved an inch, but keeps covering sheet after sheet with the trail of his flowing pen. We hope he is not an author scribbling against time; and in truth, judging from the breadth of his paper, he is more likely to be a legal copying machine, driving away to satisfy the maw of some law-court. At another window of the same house, there are seen a pair of delicate hands, belonging to a face which is out of sight, and busy among the gauds of feminine costume, ribbons and artificial flowers, lace-work and embroidery, and clipping, arranging, and stitching together, in the concoction of some mystery unfathomable to us. At the open window of an attic, a little further on, sits a young fellow shaving himself; he has just risen from his bed, at five o'clock in the afternoon, and is going to breakfast at six, after which, we suspect, judging from appearances, he will be off to the printing-office of some daily paper, where he will get through his day's work during the night, eat his dinner at two o'clock in the morning, and sup about the time that you and I are thinking about breakfast to-morrow. A most unnatural way of spending a life, you say; but then,

if he didn't do it, and a good many others too, you wouldn't get your "Times" to-morrow; and how would you like that? That room where both windows are wide open, and the blinds drawn down, is a sick-room; we know it is so, because the wind stirs the blind now and then, and reveals the basin and spoon, the medicine-glass, and the clerically banded phials, ranged on a little table by the window, where a few fresh flowers lend their fragrance to the hot breath of the city as it sweeps in. It is a sad thing to lie tossing in sickness amidst all this uproar, where one cannot shut out the noise without shutting out the air.

But what shrill sound is that which ascends even to this altitude? 'Tis the whistle of some pigeon-breeder, calling in his airy flock to their home on the tiles; and out there over the roofs of Leaden-hall, you may see their extemporized domiciles, well known to piratical, outlawed grimalkins, roof-reared, and greedy of dove's-flesh. The pigeons flock around at the familiar call, knowing that it is feeding time, but all unconscious that it is killing time as well, in a degree proportioned to the demands of the market.

But we forbear any further domiciliary investigations. We feel that it is not quite the thing to take the advantage our position affords us, to publish the domestic secrets of the dwellers around the Monument; and, moreover, we are approaching our limits, and must bring our survey to a close. We cannot extend it very far in any direction, for the simple reason that London smoke and haze shut us up in a circle of narrow limits. We know where to look for the Surrey Hills and the high lands of Highgate and Hampstead, and the far-off flats where the winding Thames works his sinuous way towards the sea; but all these items in the grand panorama we have to take for granted. The sun, already sinking westward, begins to weaken in force, and his broad disk becoming defined in outline, deepens into a rosy red, and, magnified by the haze, seems to approach us nearer as the time of his departure is at hand. For our part, we are wanting in the lofty zeal of the stylite; we begin to feel that we have had enough of our solitary column; and with a farewell bow to the congregation of chimney-tops, we dive once more into the pipe, and revolve, rather giddily, upon mother earth.

AN EGYPTIAN DRUGGIST.

AT one of the corners of what is known in Alexandria as the European Square, and at the extremity of an exceedingly narrow lane, which, however, being a short cut to the Marma, or sea-side, is a much frequented thoroughfare, "I do remember an apothecary," and so I am persuaded does every other European that ever visited this part of Egypt. His little shop was of humble dimensions, but of immense pretensions; indeed, a good sized potato-bin, fitted up with shelves, and gaily painted in yellow and white, would be a model of Malem Kabobi's shop. But then its contents. Here were all the spices of Arabia; cunning drugs and herbs; roots from Central Africa; musk rats' tails, and any amount of cabalistic charms, chiefly quotations

from the Koran, done up to serve as amulets, or be suspended as necklaces. Bottles he had, too, of all dimensions, sizes, colours, and strength and shape: some made at Medina, and hence exceedingly costly; some blown at Jaffa, and so brittle as barely to suffer handling; all varying in colour, or made to do so by water impregnated with cochineal, indigo, gamboge, saffron, or the intermixture of all or some of these colours. The larger bottles, with the exception of one or two which contained exceedingly delicious rose and orange-flower water, or, better still, a mélange of both, were for the most part dummies, merely as a set-off for the "malem's" shop. And the very small bottles, things not much bigger than the thumb-nail, and which were nearly massive glass, with the exception of a small perforated centre that certainly never held more than half a dozen drops of any liquid—these, oh these, were unspeakable treasures in the malem's eyes; they not only scented his shop, and impregnated the atmosphere with their overpowering odours, but they were worth their weight in gold, and brought considerable wealth to the already well-filled coffers of the uttar. These contained essential oils of rose, sandalwood, cloves, jasmine, orange-flower, and many other odoriferous shrubs or trees, and they were not only glass-stoppered and oilskin-covered, but also buried in fold within fold of cotton or wool—so great was the evaporation that had to be guarded against.

But it was not only in bottles that the malem came out strong; he had a rare collection of boxes ranged upon his shelves, from what had some time or other served as a gentleman's leather travelling hat-box, down to what had contained matches; and this, inclusive of empty fig drums and even gunpowder canisters. The contents of these boxes were to the uninitiated a mystery. Senna there was, and gall nuts, gamboge, opium, poppy heads, squills (*Scilla maritima*), garlic, timbacc (from Persia, used chiefly for smoking in narghelies), small bits of campechey and logwood, yellow or Persian berries, sticklac, ginger, asafetida, myrrh, powdered cochineal, cedar cones, hartshorn, sandalwood, musk, saffron and safflower, tamarinds (veritable Indian), turmeric, coriander, cincinella, colocynth, liquorice root, extract of sour pomegranate, rind of ditto; and, in small savoury jars, the most delicious conserves of roses, violet, and orange flower. Thus far we could comprehend what was brought to light from the interior of some of those mysteriously labelled boxes; one of which, by the way, containing peppermint drops, was inscribed with the following graphic and descriptive encomium, better than all the puffs and advertisements of quacks in English newspapers, viz. "Il hurb mun woojar butnoo"—literally, "The enemy to the stomach-ache." All the rest were secrets known only to the malem and his learned confrères, and consisted chiefly of roots, though I have very great suspicion that some parts of the entrails of even fish and animals, and especially of poultry, were dried and reduced to powder and disposed of as infallible remedies.

* Malem, in Arabic, means proficient, doctus, etc.

Such is a brief summary of the contents of the uttar's shop; and though he too boasted of a beggarly account of boxes, they were anything but empty. In personal appearance, Malem Kabobi was one of the most commanding and gentlemanly men I ever encountered in the East. There was that in his eye which told you at once of a well-educated and expanded mind, and a simplicity and benevolence which varied delightfully with the general aspect and features of his sable countrymen around him; his patriarchal beard flowed down to his waist, and his language and deportment were invariably those of a refined gentleman. So much was he respected by all classes, that the present viceroy of Egypt offered him a lucrative and honourable post close to his person; but the pride and the jealousy of a regal court ill suited the quiet, placid, every-day life of this old gentleman, who was, moreover, a philanthropist in every sense of the word. Although his means permitted him to do otherwise, he invariably dressed in the simplest costume, and his food was almost wholly restricted to vegetables and fruit. Many a sultry summer afternoon, under the pleasant shade of the canopy that stretched across the narrow street in front of his shop, have I sat conversing with Malem Kabobi, and for an Oriental he was the best read man I ever encountered; well versed in the history of his own people—I mean the Islams—and by no means too fanatical to argue about his faith. He entertained the most enlightened views of Christianity, and in glowing terms dwelt upon the success, attainments, education, and discoveries of those nations professing it, whilst his own people, he would add with a sigh, and in metaphor alike beautiful and adaptive, were sleeping away the noontide of day under the shade of the palm or the citron groves. Often in the midst of grave conversation, however, the Muezzin cry would cause the old malem to relapse into Islamism and his old red slippers, and shuffle off in a great hurry to the courtyard of a large mosque opposite, where regularly four times a day he went through his ablutions and devotions.

One of the projecting shutters of the malem's shop, which rested upon tressels during the day, afforded a seat upon which he spread his carpet and cushions, (and whence he weighed out, in scales that might have been invented a thousand years ago, they looked so rusty and so simple, the doses he administered to various patients); it supplied a refuge also to some of the half-starved curs that prowled about the place, and to a barn-yard cock and his harem of hens, which were the exclusive property of a one-eyed dervish in the mosque above alluded to, and benefited much by the melon seeds, odds and ends of cucumber, grains of rice, etc., which were swept under this shutter after the malem's mid-day meal. Here, undisturbed, they tranquilly reposed until the cooler hours of evening, when the siesta-loving people waken up again. Then, with loud hurrah and shout, tearing, galloping, laughing, tumbling, jumping, up one lane, round the corner, would come full charge some half score noisy British ship-masters, all a-donkey back, and racing for the best offer, in the



THE SHOP OF MALEM KABOBI.

shape of freight, that may be going a-begging amongst merchants and ship-brokers this afternoon. Away fly the troubled poultry, cackling and shrieking, to their refuge in the mosque, and under the Cyclops that presides over them; away sneak the famished dogs to the more convenient shelter of a dust-heap, which, like all dust-heaps in Egypt, is in the centre of a broad thoroughfare, and opposes a barrier even to such a cavalry charge as that made by the British skippers. The old *uttar* arouses from his afternoon siesta, and, stroking down his beard, wonders how it is that all Englishmen, as a general rule, are *miznoon*—mad, raving mad and eccentric; mad as regards their dress; mad as regards food and drink; mad in the way in which they squander their money. But this last is a delicate and pleasing reflection to Malem Kabobi. He can forgive the atrocity of men wearing inverted cooking-pots upon their heads (in Arabic the hat is literally styled *Aboo Taryerah*—i. e., the father of a cooking-pot.) He can overlook the folly of hale, hearty men persisting in swallowing pounds of solid beef and mutton, and imbibing liquors hotter than the thermometer which stands at 94° in the shade, when he rattles his cash-box, and calls to mind that all the gold therein came out of English shipmasters' pockets;

all the silver from the purses of European residents or travellers; all the coppers from his own countrymen. No sooner do the noisy cavaliers draw nigh, than one or more hauls in the rein; and although the English captain is as ignorant of the Arabic as a Chinese mandarin of *Cæsar's Commentaries*, although the Egyptian druggist is as innocent of English as a Pawnee Indian, and although there is no interpreter to serve between, excepting the donkey-boy, who makes confusion worse confounded, a conversation ensues, animated in language and gesticulation.

CAPTAIN (*log.*)—"Well, Jack—buono old fellow, eh? very hot, pooh! *Uttar Mashallah! Capidane—pipe timbac.*"

SECOND CAPTAIN—"No, no, you non *sabeh* old *Methuselah*—you *sabeh* *Stamboul*. One bottle (one finger up), two bottles (two fingers up, to demonstrate), attar of roses."

DONKEY BOY—"Yes, *saar*, he *understanem* how much *piastre*."

Meanwhile the old gentleman, perfectly at a non-plus, from force of habit produces the article in demand. It is precious, and it brings him gold, every coin of which he makes to ring clearly against the lid of his small iron cash-box, before it disappears and mingles with the rest below, and thence adds to the

mysterious hoards hidden in walls, roofs, or underground. The malem would sooner lose his beard than place his money in a bank.

LENGTH OF LIFE.

THERE is no gift so precious to man as length of days, nor any so variable in its distribution. The facts we have grouped together in this paper exhibit this variability, and at the same time show that, though a higher than man determines his days, the Supreme Controller has yet arranged that a man's own wisdom or folly, his compliance with or violation of his Maker's laws, shall, to a great extent, regulate the duration of his mortal existence.

We leave altogether out of our observation those ages when the patriarchs told off their years by hundreds, and collect our facts from the era in which "three-score years and ten" are the average measure of life. The sacred writer, whose words still indicate the ultimate period of human life, saw that man's constitution was adapted to reach such an age, and that those years comprised within themselves most of the vigour, ability, intelligence, enjoyment, and true life of man. We see the same at the present day. Man's life, however, is spent among so many circumstances that are unfavourable to health and length of days, that though many do reach this goal, and some few even surpass it, the bulk of men die having fallen short of it.

We shall presently show that the probabilities of human life are for the most part easily computed, and we shall hardly be charged with error in saying that those countries afford the strongest probabilities of long life whose annual mortality is the smallest, while those whose mortality is high render the expectation of life correspondingly low. The statistics of human life have been combined into numerous and interesting problems, which have yielded highly useful results. The figures that follow, taken from the most recent and authentic returns, express the annual mortality in the several countries indicated:—

In France, it is one in . 42	In Austria, one in . . 33
In Prussia, one in . . . 38	In Russia, one in . . . 28

That is, in France, for instance, one person in every 42 dies yearly, and similarly for the other countries. In England, according to recent computations, the mortality was one in 46, the extremes varying from one in 37 in Lancashire, to one in 55 in Sussex, Surrey, and North Wales. From this it appears that England is the healthiest of all the great European states, and that the probability of life is greater in it than among any of the others. From other comparisons we find that there has been a great and gradual prolongation of life in England during the last century: according to Mr. Finlayson's computation, it is now as 4 to 3, in round numbers. Persons living at the present day enjoy a better degree of health than their ancestors did, and more persons live to an advanced age than formerly. Comparing the mortality of London with that of England, it appears greater in the former, the figures being one in 42 against one in 46. The annual mortality of London, again, varies in its

several districts, ranging from one in 26 in White-chapel, to one in 54 in Hackney. Here, again, may be noted the stronger probability of lengthened life in the districts less ravaged by mortality.

Of all the children born in England, it is calculated that one-fifth die in the year of their birth, and full a fourth under five years of age. A computation made by the compilers of the last census report shows that, if we put down the extreme age of man at a century, and divide it into five ages of twenty years each, and "if 100,000 children born at the same time, be followed and numbered at equal intervals on their journey through life, it is found that, according to the present mortality in England, 60,061 enter, at the age of twenty, the second of the five ages that have been characterised; that 53,824 enter, at forty, the third age; that 37,998 enter, at sixty, the fourth age; that only 9382 live through the first four ages, and at eighty enter the fifth, which it is not probable that more than one or two will pass over. Consequently, 39,939 never reached the second age (20); 46,176 never enter the third age (40—60); 62,002 never attain the fourth age (60—80); 90,618 never see the first year of the last age (80—100); and 99,998 never see the last year of the possible lifetime of Englishmen. Hence, it appears that human life is the most insecure in infancy and old age. The chance of living through a given year increases from birth to the age of fourteen or fifteen; it decreases to the age of fifty-five to fifty-eight, at a slightly accelerating rate; after which, the vitality declines at a much more rapid rate."

Such facts and observations supply the bases on which tables of mortality are constructed, and the probabilities of human life are reckoned up by assurance companies, annuity societies, and political economists. Of the 100,000 children that are born alive at any time, the proportion of boys is about 51,274; in somewhat more than forty-four years, nearly half of this number dies, so that the probabilities of a male child attaining that age are about equal: hence the probable life-time of a male child at birth is nearly forty-five years. If the 51,274 boys be followed to the close of their life, and the years lived by each of them be noted and added up, the sum, when divided by 51,274, will yield about forty years and a fraction, as the average duration of their lives. This quotient is called the expectation of life at birth, or mean life-time of a boy calculated at his birth.

We may now proceed to indicate some of the great variations of human life in England, and trace their proximate and apparent causes. Passing by the years of infancy, in which so many die from causes that are difficult to discover, we take the cases of persons who have started in life with constitutions sound and promising, and have to point out the diversity in the lengths of their lives and its probable cause. We believe these are accounted for in the main by three circumstances—namely, locality, pursuits, and habits.

The influences exercised by localities on health and life differ most materially. England is healthier than any other nation in the world; but England has within itself localities, whose influences are as

different from each other as life is from death. Why should Surrey be so much healthier than Lancashire? or why should Whitechapel be more exposed to disease and death than Camberwell or Hackney? In the less favoured districts, men are found crowded together in very confined spaces, herding together in dirty cellars or filthy lodgings, breathing a vitiated atmosphere, drinking water that is abominably impure, exposed to the reeking exhalations of bogs and marshes, or of defective drainage and accumulations of decaying animal and vegetable offal. All these are the most terrible auxiliaries of the pestilence and of death; no locality where they abound can be healthy. On the other hand, good air and water, a dry soil, houses roomy, cleanly, and well ventilated, good broad streets, well-drained and swept dry soil, freer currents for the atmosphere, cleanliness of home and person—these are found to be the characteristics of the healthier districts. "Elevated situations are generally more healthy than places shut in by hills. In towns, those parts which are traversed by broad streets are always more healthy than those which are so closely covered with houses as never to be properly ventilated, or where the sun can never penetrate to dry up the moisture; but an ill-drained situation is the most injurious to health."

As confirmation of the above, we may cite the following facts: "The population of Shoreditch is one-twentieth of that of all London, or 125,000 out of 2,500,000. The mortality from all causes in Shoreditch, during the quarter ending 28th of June, 1856, was 629—from epidemics 158; a proportion considerably exceeding that of all London." In the report, the state of the water and air supplies are greatly dwelt upon. The water was impregnated with organic matter, and very hard, and the buildings were so constructed that a free and constant ventilation was impossible. In such a district as this, constant health would be a rarity, and extreme old age a miracle. The annexed table, taken from Mr. Chadwick's Sanitary Report, will give additional illustration to our subject.

Towns.	Average Age at Death.			General Average.
	Gentry and Professional Persons.	Tradesmen.	Labourers, &c.	
Kendal	45 Years	39 Years	34 Years	36 Years
Bath*	55 "	37 "	25 "	31 "
Four Metropolitan Unions	44 "	23 "	22 "	25 "
Leeds	44 "	27 "	19 "	21 "
Bolton	34 "	23 "	13 "	19 "
Manchester	38 "	20 "	17 "	18 "
Liverpool	35 "	22 "	15 "	17 "

In this table it will be seen that something more than mere locality is involved; but as we are now only looking at the local discrepancies, we exhibit it as indicating them in a very marked manner.

Before proceeding to the next point, we may state that the influences of all localities are more

or less qualified by the several seasons of the year. It is generally found that disease and mortality decrease as the spring and summer advance, and that there is a proportionate increase in them towards the middle of winter: in London, this is expressed in the following figures: deaths in the four seasons, out of 10,000 persons, 78 in winter, 58 in spring, 54 in summer, 57 in autumn.

We come now to point out the influence of pursuits and employment upon health and longevity. In 1839, a tabular statement of observations on the sanitary tendency of various occupations, was published at Berlin, and from it we extract the accompanying schedule. Out of 100 of each class, the age of 70 and upwards was reached in the following proportions:—

By theologians and divines	43
" agriculturists	40
" men in office	35
" commercial and industrious men	35
" teachers and professors	27
" military men	23
" clerks, &c. . . .	32
" advocates	29
" artists	28
" medical men	24

The quiet and regular lives of the clergy may account for their favourable position in the scale; as, doubtless, the exposed and harassing profession of the doctors will explain their deplorable pre-eminence.

[To be continued.]

COWPER'S LINES ON THE NORTHAMPTON BILL OF MORTALITY FOR 1792.

THANKLESS for favour from on high,
Man thinks he fades too soon;
Though 'tis his privilege to die,
Would he improve the boon.

But he, not wise enough to scan
His blest concerns aright,
Would gladly stretch life's little span
To ages, if he might.

To ages in a world of pain,
To ages, where he goes
Gall'd by affliction's heavy chain,
And hopeless of repose.

Strange fondness of the human heart,
Enamoured of its harm!
Strange world, that costs it so much smart,
And still has power to charm.

Whence has the world her magic power;
Why deem we Death a foe?
Recoil from weary life's best hour,
And covet longer woe?

The cause is Conscience—Conscience oft
Her tale of guilt renews:
Her voice is terrible though soft,
And dread of death ensues.

Then anxious to be longer spared
Man mourns his fleeting breath:
All evils then seem light, compared
With the approach of death.

'Tis judgment shakes him: there's the fear
That prompts the wish to stay:
He has incurred a long arrear,
And must despair to pay.

* The high average of Bath in the first column is partly due to the large number of rich old invalids who live and die there.

*Pay!—follow Christ, and all is paid;
His death your peace insures;
Think on the grave where He was laid,
And calm descend to yours.*

BERTHA; OR, SMILES AND TEARS.

TRANSLATED FROM THE GERMAN BY MARY HOWITT.

CHAPTER III.

WHEN a carriage is rolling down-hill, it speeds ever faster and faster. Sprösser had, at the time of his marriage, concealed all his previous debts, in the expectation of the fortune which he should receive with his wife. Since then, other debts were incurred, and his necessities had latterly tempted him to embezzle various sums of public money committed to his charge. For two years this went on; then came the terrible day of reckoning; an examination took place, the result of which was, his sentence to six years' imprisonment in the House of Correction.

Who can describe the nameless, dull misery of a fate entirely caused by the sufferer's own misconduct—a suffering without God, without consolation! Who can pourtray the anguish of the poor wife, when her husband, instead of an expression of repentance, broke forth into curses and imprecations against every one, guilty or innocent—against herself and her parents, against himself, against God, and the whole world! It was almost a relief to her when, somewhat recovered from the attempt he had made on his life, he was conveyed away to prison, although even this terrible separation almost broke her heart.

Caroline had no religious faith, because the divine promises of consolation, to which she should have clung now in her downfall, glided from her as it were; the thorns choked every divine up-shooting seed of life; she was without hope; but love for the husband of her youth, for the father of her child, still remained under the rubbish with which selfishness and worldly-mindedness had choked up her heart. She felt unspeakable compassion for him; and when she heard his sentence, it seemed to her that she herself was equally guilty, and in the anguish of her son's self-accusation, she besought permission to share his sentence and suffer with him, punishment and ignominy—a prayer which, of course, could not be granted. The evening before he was finally removed to his place of penal punishment, he was permitted to take leave of his wife; and when she saw him take her hand, yet turn aside his countenance, with downcast eyes and the anguish of conscious guilt and misery stamped on every feature, it was more than she could bear, and she fell to the earth in an agony of despair.

But the heart of her mother remained open to her, although she had no home to offer her. The grandmother, however, did not long survive her own griefs, though she was by no means old, and appeared to have a strong constitution. Living in the close street of a town, with no active household duties to occupy her, receiving her food only from a wretched eating-house, her heart seemed broken;

she felt a disgust to her food, and, in fact, she never was well after the death of her husband. And lastly, when, to complete her misery, this terrible guilt and disgrace blasted the reputation of her son-in-law, the husband of her only child—him who, though she never wholly liked, she yet had regarded with a certain degree of pride, as a gentleman and a government officer—this was more than she could bear. She had made every sacrifice to save the reputation of her husband; but now the thought weighed heavily upon her, whether she might not have made a yet greater sacrifice and have prevented this more terrible misery and disgrace. There seemed to her no end of torturing thoughts; her despairing and inconsolable daughter added greatly to her grief, nor did she seem to have the power even to enliven the little granddaughter.

Caroline had the opportunity, in the care which the declining life of her mother required, and during the slow fever which consumed her, of fulfilling her hitherto neglected filial duties. But she bore the sickness of her mother with the same despairing resignation with which she now accepted life—"It is no use, it must come." But why it must come, or how the cross could have taken away the sting of this, she never thought.

It was different with the grandmother. She did not evade the examination of her own heart, nor the silent judgment to which the Lord subjected her in the long nights and endless days of her sickness. However small her faults might appear in the eyes of man, they were now clear to her—her over-estimation of outward possessions, her former want of true piety and humility; thus she did not remain lying under the burden of the cross, but rose and carried it patiently to the end.

The daughter did not comprehend the light of peace which had arisen for her mother, and which beamed from her gentle eyes; the word of God, as spoken through the Bible, remained a dead and unknown language to her.

The mother died, and Caroline felt, with a sort of gloomy satisfaction, how wholly forlorn she was; how "it was no use, it must come."

All this misery gathered about little Bertha before she was old enough to comprehend it. A short spring-time had been allotted to her; the whole unconscious period of its earliest development under the care of the grandmother, who had carried her out, cradled in a large basket, into the beautiful sunshiny garden, or under shady trees in the open fields, where she looked up laughingly to the blue sky, and played with flowers and pretty stones. All this soon passed; and gloomy countenances, eyes red with weeping, and dark dresses, were the first impressions which were received into the child's developing consciousness. Very often would she turn her blue inquiring eyes from one to another, often stroke the old grandmother's face with her little hands, and say, "Don't cry, grandmother!" but by degrees she became accustomed to the sadness around her, and quietly went on her own way. The child developed slowly, because nobody sought to call forth her young powers. Instead of the

mother endeavouring to make the child happy with such inexpensive and simple means as were at hand, she despised them because they were such, and did nothing. "What's the use?" she said; "the very tailor's wife below can give her child a beautiful doll's house; but you, poor little thing, have nothing."

When the spirit of the grandmother rose up again from the blow which had crushed it, she was physically too weak to do much for the child. Little Bertha would sit for hours on her grandmother's bed, turning over the pictures in her old prayer-book—her only amusement.

"Let the child have a little bit of pleasure," besought the grandmother.

"Ah! what pleasure?" said the mother; "we have hardly bread; better that she should thus grow up, than think she can live like other people, and then fall into misery."

Who can trace the gradual budding forth of the inner life? who can listen to the silent world of thought and imagination which awakens and blossoms in the soul of a child, long even before it finds words to express them? And who knows how powerfully early impressions operate from the outward, long before the child can show that it has even received them? How much of unconscious joy, of fresh courage for the battle of life, of beautiful ideal perfection, may we not probably derive from the loving, laughing eye of our mother, which beams towards us in childhood—from the joyous cradle songs which she sings to us, and from the cheerful companions with whom she surrounds us! The talent for enjoyment must, above all other talents, be cultivated in us; otherwise, all die.

It was, therefore, no wonder that little Bertha grew up a lightless and sunless flower, colourless in the outward, joyless in the inner.

She went to school. As yet she had never had any acquaintance with children; but it was not the hand of her mother which conducted her to the teacher: a neighbour took her instead. The large assembly of children frightened her, and she became more timid and silent than ever. She learnt very slowly; but when finally she had conquered the difficulties of reading and writing—those gates to the realm of learning—she entered upon the pursuit of knowledge with that quiet, eager zeal which peculiarly belongs to the successful student—to him who is praised and advanced by the teacher, and taunted and envied by his companions.

School-days are a joyful time, even though they may be the first experience of the toil and combat of life. Do not fear their dangers! Commend your child to the Lord, and keep its young heart open; then may you, without anxiety, let it enjoy the pleasures and pass through the sufferings of this, its first citizenship of the world. So do, if you would not keep your child wrapped up all its days in cotton-wool under a glass shade.

Among the regulations of our schools we always read: "It is expected that the scholars should leave the school in a quiet and orderly manner." Yes; quietly and orderly! I will not speak of boys,

amongst whom it is a daily miracle that the school-steps are not demolished, under the tumult of their bursting forth from the confinement of school; no, but girls also rush forth from their school-rooms like a swarm of bees, only with a great deal more noise; and the teachers are wise enough to allow the regulation to be quietly broken, knowing that it is simply the dear, beautiful strength of life which suddenly puts an end to the long silence. This, however, is not the case with "young ladies' establishments," in large towns, where the young ladies are expected to walk home, or walk out, as the case may be, in bonnets, veils, and with parasols, in the consciousness that they are moving before the eyes of an educated public, and whereby even the rudest assumes a demeanour of cultivation. And the pauses, the playtimes that occur, even in study, how glorious! It is worth while to go to school even for them. What an affluence of amusement they afford; a game peculiar to every season; snowballing comes with the snow; then hop-scotch, or five stones, or whatever it may be called; later on, the wild game of "Buck, buck, what are you doing in my garden?" cat and mouse; "there came three knights a-riding;" threading the needle, and so on, in an inexhaustible variety, till the monotonous winter again brings round sliding and sledging.

Among the less praiseworthy enjoyments even of the school-hours, in which girls are more inventive than clumsy boys, are painting pictures, working book marks, making bead rings, weaving horsehair chains, cutting out paper, plaiting each other's hair, and others even more trifling; yet do they not prove that our sex cannot be exclusively devoted to intellectual activity, neither can it be drilled into knowledge by a military system?

In all deviations from line and rule, our little Bertha took no part; such proceedings were quite foreign to her nature; she was too earnest and too innocent for breaches of school decorum, and also too bashful and too awkward even for the legitimate school games. She sate upon a bench before the schoolhouse one day, soon after her entrance into the school, whilst the other girls, large and small, were actively at play in the school court.

"Come and play with us!" said one of the great girls to her, for she was interested in the quiet, silent child. Bertha took her place in the circle. "Where is your father, little one?" asked the taller girl. Bertha looked astonished, and was silent, for at home no one ever spoke of her father.

"Her father is in the House of Correction," whispered another of the taller girls to the inquirer.

Bertha was, it is true, too young and too inexperienced fully to understand the meaning of these words; but she understood the timid, compassionate glance of her friend, and the involuntary shudder of the girl who held her other hand, and the words gave her pain like a dagger's point. She did not venture to ask her mother; but one day she timidly asked the good neighbour who took her to school, in a whisper, "What does

it mean when a person is in the House of Correction?"

"Oh, that is very terrible; don't ever ask about that; you don't know anything about it, you poor little thing!"

She never repeated the question; but she became more and more silent and reserved.

The teacher took a great liking to her; and if her protection did not extend beyond the school, it at all events sufficed for her within it; and her countenance was to her as the countenance of an angel. Reading, and the acquisition of knowledge, were now her only pleasures; but they neither made her eyes bright nor her heart glad; she had nobody to whom she could express a pleasure; she did not think such a thing possible. Her mother always sate at home with the same unchanging, gloomy countenance, assuring herself of that which was an established fact in her own mind—that "it was no use; it must all happen!"

PHYSICAL FORCES.

WORDS and combinations of words there are, which, though harmless in themselves, get tabooed, and cast aside as a bad lot, because of their associations. Let the reader, therefore, well mark that the title of the paper he now reads is not Physical Force, but *Physical Forces*. I beg of him not to imagine that pictures of war and ruin will be produced for his contemplation—not even a street row—not even the more legitimate exercise of physical force which some of us experienced in our school days. The ever-acting forces which influence matter, which subject it to our will, which give motion to our mill and factory wheels, which speed our messages along the telegraphic wire, which impel our ships across the blue waste of ocean—the forces, in short, which stir up matter, so to speak, from its inertia and make it work—such are the aspects of physical force which will be touched upon in this paper.

When man, fairly tired of getting physical force out of his own bones and muscles, seeks an aid, his first resource is to command the physical force of animals. If we carry our mind back to the period when the Ancient Britons roamed these isles, the picture would not be correct if we should feign either windmills or watermills; man and horse-power were the only kinds of physical force brought into operation then.

What a change now! Throughout these isles it is most rare to find machinery impelled by horse-power, and as to man-power used that way, almost the only example of it at this time is furnished by the tread-mill. Perhaps, after animal power, wind power follows most naturally. As the agent of physical force to be employed for the propulsion of ships, it has held a time-honoured place ever since ships were invented; and it still holds its own at sea, even against steam, that great competitor. The application of wind to direct propulsion is a self-evident matter: more elaborate does the problem become when it is desired to impart rotatory motion by the force of wind. Though windmills have now been so long invented, though they have done and

still are doing good service, mathematicians have not been able to determine absolutely the best pitch or inclination which ought to be given to mill vanes, in order to impart to them the maximum force from the minimum of wind.

The advantageous points in favour of wind as a motive force, are its cheapness and its universality. Anywhere a windmill may be erected, under the certainty that it will work whenever the wind blows in its locality. The disadvantages of wind power are the fickleness and the irregularity of it. For these reasons, wind power is very badly adapted to such operations as weaving and spinning, though it serves well enough for grinding corn, pumping water, and sawing timber. For the two latter purposes, windmills are employed by our neighbours the Dutch, to an extent which no person would imagine who had not seen the sloppy land where Dutchmen

"Feed like cannibals on other fishes,
And serve their finny brothers up on dishes,"

as the poet, using rather more than the ordinary amount of poetical licence, expresses himself.

Nowhere in the whole world are windmills seen of such gigantic proportions as in Holland, and, extremes meeting, nowhere windmills of such puny dimensions, except perhaps in La Mancha and Castile. Spanish windmills are so exceedingly diminutive that the traveller, whose eye has alighted upon them, marvels less that the cracked-brain knight of La Mancha should have mistaken one of them for a giant, and given battle accordingly, than he would after a mere perusal of Don Quixote.

Travellers in Holland can hardly fail to be struck with the size of an enormous fellow of a windmill at Rotterdam, which, towering above a bevy of other windmills, seems to say, "I amongst all am the one." That giant of a fellow is devoted to drainage purposes—drainage of Rotterdam, which stands on so low a level that its sewage water, in certain states of the tide, has to be pumped into the Maas.

The pigmy windmills, so invariably seen in the low agricultural districts of Holland, are for drainage purposes too. The whole surface of the country is drained by them. They do not carry off the water by pumping, as is ordinarily supposed, but by setting in motion little water-wheels, to the circumference of each of which buckets are attached. The buckets dip in water as the wheel goes round, and deliver it into a channel a few feet higher than the one from which the buckets took it. In this way, by a series of successive lifts, the water is at length delivered into the ocean.

The application of water as a motive physical force is a more obvious affair than the application of wind. The water may either be applied under the wheel, half way up the wheel, or above the wheel, whence arise the three varieties of undershot, breast, and overshot wheels. In the last variety of water-wheel, the overshot weight, rather than impulse of water, may be considered the motive agent. Water-mills seem to have been first employed by the ancient Romans, about the period of Julius Cæsar, not earlier. This fact is somewhat extraordinary, when taken in connection with the high mechanical

skill of the Romans, but so it was. Beckmann, in his "History of Inventions," comments on the error some people have fallen into in respect of the term water-wheels, which frequently occurs in Roman history, before the epoch of Julius Cæsar. He remarks, that the water-wheels in question were not mill-wheels—not for imparting motion to mill-work, but simply to raise water, just as water is raised in Holland at the present time by buckets attached to a rotatory wheel, worked by the wind. In certain parts of the south of Spain, wheels of this sort are common enough, even now, as they are also in the East; they are made to rotate by a sort of treadmill arrangement, differing from our criminal treadmills, however, in the respect that the step-work is inside, not outside the wheel. Occasionally, in Roman History, we hear of slaves and malefactors being attached to water-wheels: it is the sort of water-wheel I have just described—a treadmill wheel in point of fact; whence we perceive that the treadmill is, after all, no modern invention.

If the Romans were a long time without water-wheel force, they were still longer without windmills; indeed, Beckmann confidently asserts that the latter remained totally unknown to the ancient Romans.

If we analyze the ultimate nature of the physical force derived from wind and water, we shall find it ultimately referable to weight. If air were devoid of weight, it could have no impulse, and of course there would be neither wind-propelled ships nor windmills. The same of water. The physical force which men and animals exert is referable partly to weight, and partly to muscular contractibility. If a man had no weight, he, of course, could not pull downward. The pulling force thus exercised, is limited by the weight of him who pulls.

The next agent of physical force which I shall mention is steam. It derives its force from quite a different agency—that of elasticity. Steam has weight, truly, but the weight of it has no more to do with setting a steam-engine in motion than the weight of a charge of gunpowder has to do with the propulsion of a ball. This must be obvious when reflected on. What causes the elasticity, the expansibility of steam? Heat—fire. The general effect of heat is expansion. Most people know what an Italian heater is—a sheath of iron into which fits a bar of iron. The latter being inserted hot, imparts heat to the sheath outside. Sometimes it occurs that the bar fits *too* accurately, that is to say, fits the sheath exactly when cold. So surely as this happens, the bar will not enter the sheath when hot, because heat will have expanded it. In like manner, whenever the artilleryman desires to load his cannon with a red-hot ball, he uses a ball of low gauge, as the term is, that is to say, a ball smaller than he would have employed under common circumstances.

Seeing that heat expands solids in this manner, little wonder that it expands liquids. Everybody knows how a few drops of water can be caused to expand, on the application of heat, into whole cloud puffs of steam; but only the engineer is aware of the enormous physical force brought into play during this expansion. The recent lamentable

disaster on the "Great Eastern" is a striking illustration of this fact.

Steam-engines admit of division into two varieties, denominated high-pressure and low-pressure steam-engines. The distinction at this time between high and low-pressure engines has reference to many other points besides the mere pressure of steam employed. Sometimes it happens, though not often, that the mere steam pressure of a so-called high-pressure engine is less than that of a so-called low-pressure one. In determining the division to which a steam-engine belongs, the great point to notice is whether steam escapes from it in fizzes and puffs, or whether no such escape takes place, the engine working tranquilly. High-pressure engines blow of their steam; low-pressure engines condense it. In high-pressure engines the piston is forced up by steam from below, and afterwards forced down by steam from above—steam, nothing but steam, being the motive force. In low-pressure engines, however, the piston is forced up by steam; then the steam, instead of being allowed to escape, is condensed, thus creating a partial vacuum below the piston, upon which the atmospheric air, pressing with a weight of fourteen pounds upon every square inch of surface, forces it down again.

Having passed under review gravitation or weight, muscular contractibility, and vaporous expansion—each in its turn begetting, or rather setting in motion, physical force—we will just glance at another sort of expansion, that is, the gaseous. Gunpowder and other explosive bodies are examples of such. Their enormous power I need not draw attention to; whether to hurl heavy spheres of iron thousands of yards through the air, or to shatter rocks, everybody is familiar with the powers of gunpowder; and gunpowder is the least powerful of the explosive class. Unfortunately, the tremendous reservoir of physical force lying dormant in gunpowder, has never hitherto been turned to account as a motor force for machinery. The explosive force of gunpowder is all but unrestrictable; moreover, it is too sudden to admit of application as a substitute for steam. If steam be raised to the pressure of fifty pounds on the square inch, it is very high pressure steam indeed, whereas the pressure on each square inch exercised by gunpowder has been estimated at no less than six and a half tons!

The most wonderful source of physical power is electrical and magnetic attraction; I might have written with equal correctness, electrical or magnetic attraction. Twin sister forces are those of electricity and magnetism, or rather Siamese twin forces. Generate the first, and up springs the second; produce the second, and beside it stands the first.

The motor force capable of being educed from electricity direct, is slight. Feathers can be attracted by electricity, and pith figures made to jump; thin plates of metal can be made to approximate or diverge, according as the electricity is brought attractively or repulsively into operation, but no more. When, however, magnetism is generated out of electricity, the attractive force of such magnetism is sometimes enormous. In fact, there seems no limit to the attractive power which

can thus be created. A simple bar of iron, bent into a horseshoe form, and having a wire wound about it, can on the instant be changed to a magnet capable of supporting many tons, simply by transmitting a current of electricity along the wire. No less instantaneously is a magnet of this sort capable of being demagnetized, or reconverted into a simple unattractive bar of iron, by cutting off the supply of electricity. In magnetism, then, there would seem to be at a first glance a promising source of physical power. Thousands of attempts have been made to turn magnetic attraction to practical account as a motor force—making it a substitute for steam—but with only partial success. Electro-magnetic engines have been constructed up to the power of a few men; not, I think, beyond; and the expense of working and keeping in order, even such puny sources of power as these, is very great. The practical reason why magnetism, though illimitable as to actual power, is unadapted to rank amongst useful physical forces for setting machinery in action, is this: the attraction of magnetism is exercised through short distances only—so short that it is difficult to apply the attraction without actual contact, which latter condition the necessities of mechanism forbid.

What did I say? Magnetism not a useful physical force? This is an error. At least, a pair of exceptions must be taken. There are magnetic telegraphs and magnetic, commonly called electric, clocks. In both these cases, however, the mere motor force is inconsiderable. In most forms of electric telegraph employed here in England (varieties of the needle telegraph, I mean), the actual force brought to bear scarcely amounts to a grain. The force requisite to keep an electric clock going, as well as certain forms of the magnetic or electric telegraph, is rather greater, but still inconsiderable.

Perhaps one of the most interesting aspects under which the physical forces can be contemplated is in respect of their mutual alliance or correlation. Magnetism and electricity I have already ventured to call Siamese twin forces, so intimate is their alliance: not less intimately allied with both, though at a first glance the alliance may be less obvious, is heat. It is impossible to vary the temperature of a body, whether from hotter to cooler, or the reverse, without setting electricity in motion, and, of course, its counterpart, magnetism. Gravitation is allied with the three, though the bond of alliance be not so clearly made out. As for animal muscular force, some people were in the habit of referring it to electricity also; but that notion seems to have pretty well died out.

Looking on steam-engines, high-pressure and low, as the drudges and slaves of man, considering the facilities of wind power and water power, the student, when pondering in his own mind the physical resources of nations, will arouse to the conviction that the mere number of individuals is a secondary matter in the estimate. The assertion that England annually summons to her aid the power of three millions three hundred thousand men, each man pledged to work unceasingly for a

period of twenty years, might provoke a smile of incredulity; yet, see how the assertion is borne out. Assuming (which is about the fact) each acre of British coal-seams to present an average thickness of four feet, and to yield one yard net of pure fuel, then each acre of surface corresponds with five thousand tons of coal, possessing a reserve of mechanical strength equal to the life labour of one thousand six hundred men. Each square mile of one such single coal bed contains three million tons of fuel equal to the power of one million men working through twenty years of their ripe strength. Assuming, for calculation, that ten million tons out of the present annual products of the British coal mines—namely, sixty-five million tons—are applied to the production of mechanical power, then, England annually summons to her aid an army of three million three hundred thousand strong men, pledged to exert their utmost strength through twenty years: which was the thing to be demonstrated.

The preceding calculation was originally made by Professor Rogers, of the United States. It is very curious, and not less irrefragable than curious. Deprived of surface expansion as we are in these isles, hemmed in by ocean on all sides, our population, under the most favourable circumstances, must continue small in comparison with the population of nations whose expansion is not limited by the sea bounds of an isle. But, taking into account the vast reservoir of physical force wherewith we are blest, these little islands may rank side by side, in physical power, with the largest nations on earth.

THE KING AND THE GOOSE-HERD.

"Cobbler! stick to thy last,"

Most, if not all, our readers have heard this proverb applied, when some one has attempted what was out of his province. But, assuredly, none of them ever saw it so royally exemplified, as it was in the true history I am about to relate, the principal actor in which was no less a personage than Maximilian Joseph, of Bavaria, the grandfather of the present king of that country, and one of the most loving, as well as one of the most beloved monarchs, that ever wielded a sceptre. On one hot summer day, King Maximilian, clad in very plain habits, had gone out alone, (as was his wont,) to walk in the fine park which surrounds his castle of Tegernsee,* and after a time, drew a volume from his pocket, and seated himself on a bench to read. The sultriness of the air, and the perfect stillness of the place, made his eyes heavy, and laying down his book on the bench beside him, the monarch fell into a dose. His slumber did not last long, however, and on awaking he rose to continue his walk, but forgot his book, and left it lying on the bench. Wandering onwards, from one division of the extensive park to another, he at length passed beyond its limits, and entered on those grassy downs which stretch down to the margin of the lake.

All at once, the king remembered his book, and the possibility that it might be seen and appropriated by some stranger passing by. Unwilling to lose a book he valued, and equally unwilling to retrace the way he had come, while the lake path to the castle lay temptingly before him, the king looked round in every direction, for some one whom he could send for the volume; but the only human being within view was a boy, tending a large

* The same romantic residence to which the still suffering King of Prussia resorted last summer.

flock of geese. The monarch, therefore, went up to him, and said, "Hearken, my lad: dost think thou couldst find for me a book I left lying in such and such a part of the park? thou'lt get two 'zwanzigers'* for bringing it to me."

The boy, who had never before seen the king, cast a most incredulous look on the corpulent gentleman who made him so astounding a proffer, and then turned away, saying, with an air of comical resentment, "I am not so stupid as you take me for."

"Why do you think I consider you stupid?" asked the monarch.

"Because you offer me two zwanzigers for so trifling a service; so much money cannot be earned so easily," was the sturdy reply.

"Now, indeed," said the king, smiling good-humouredly, "I must think thee a simpleton! why do you thus doubt my word?"

"Those up yonder," replied the boy, pointing in the direction of the distant castle, "are ready enough to make sport of the like of us, and ye're one of them, I'm thinking."

"And suppose I were," said the king; "but see, here are the two zwanzigers; take them, and fetch me the book."

The herd-boy's eyes sparkled as he held actually in his hand a sum of money nearly equal to the hard coin of his summer's herding, and yet he hesitated.

"How now," cried the king, "why don't you set off at once?"

"I would fain do it—but I dare not," said the poor fellow; "for if the villagers hear I have left the plaguy geese, they will turn me off, and how shall I earn my bread then?"

"Simpleton," exclaimed the king, "I will herd the geese till your return."

"You!" said the rustic, with a most contemptuous elongation of the pronoun; "you would make a pretty goose-herd; you are much too fat, and much too stiff: suppose they broke away from you now, and got into the rich meadow yonder, I should have more trespass money to pay than my year's wages come to. Just look at the Court Gardener there, him with the black head and wings; he is a regular deserter, a false knave; he is for all the world one of the court trash, and they, we all know, are good for nothing. He would lead you a fine dance! Nay, nay, it would never do."

The king felt ready to burst with suppressed laughter; but mastering himself, asked with tolerable composure, "Why, can I not keep geese in order, as easily as men? I have plenty of them to control."

"You," again said the boy, sneeringly, as he measured the monarch from head to foot; "they must be silly ones, then! but, perhaps, you're a schoolmaster? Yet, even if ye be, it is much easier to manage boys than geese; that I can tell ye."

"It may be so," said the king; "but come, make short work of it: will you bring the book or will you not?"

"I would gladly do it," stammered the boy, "but—"

"I'll be answerable for the geese," cried the king, "and pay all damages, if such there be."

This decided the question, and so, after exacting a promise that his substitute would pay special attention to the doings of the stately gaudier, whom he designated as the "Court Gardener," and pronounced an incorrigible breaker of bounds, and prime seducer of the flock, he placed the whip in the king's hands, and set off on his errand.

But scarcely had he run a few yards when he turned back again.

"What is the matter now?" called out the king.

"Crack the whip," resounded in return. The monarch swung it with his best effort, but procured no sounding whack. "I thought so!" exclaimed the rustic. "A schoolmaster, forsooth, and cannot crack a whip!" So saying, he snatched the whip from the king's hand, and began, with more zeal than success, to instruct him in

the science of whip-cracking. The king, though scarcely able to contain himself, tried in right earnest, and at length succeeded in extracting a tolerably sharp report from the leathern instrument of authority; and the boy, after once more trying to impress the duties of his responsible office on his temporary substitute, ran off at full speed in the direction the king had indicated.

The monarch, who could now indulge in a hearty laugh, sat himself down on a tree stump which the goose-herd had previously occupied, to await the return of his messenger. But it really seemed as if his feathered charge had discovered that the whip was no longer yielded by their accustomed prompt and vigilant commander, for the treacherous "Court Gardener" suddenly stretched out his long neck, and, after reconnoitring on all sides, uttered two or three shrill screams; upon which, as if a tempest had all at once rushed under the multitude of wings, the whole flock rose simultaneously into the air, and before the king could recover from his surprise, they were careering with loud screams towards the rich meadows bordering the lake, over which they quickly spread themselves in all possible directions.

At the first outburst, the royal herdsman called "halt," with all his might; he brandished and tried hard to crack the whip, but extracted no sound which could intimidate the Court Gardener. He then ran to and fro, until, teeming with perspiration, and yielding to adverse fate, he reseat himself on the tree-stump, and, leaving the geese to their own devices, quietly awaited the return of his messenger.

"The boy was right, after all," said he to himself: "it is easier to govern a couple of millions of men than a flock of 'plaguy geese,' and a court gardener can do a deal of mischief."

Meanwhile the boy had reached the bench, found the book, and sped back in triumph, little dreaming of the discomfiture his substitute had experienced. But when, on coming close up to the king, he looked round in vain for his charge, and still worse, when their vociferous cackling led his eyes in the direction of the forbidden meadow, he was so overwhelmed that, letting fall the book, he exclaimed, half crying with grief and vexation, "There we have it! I knew how it would be! Did I not say from the first you understood nothing? And what is to be done now? I can never get them together by myself. You must help, that's a fact."

The king consented; the herdboy placed him at one corner, showed him how to move his outstretched arms up and down, whilst he must shout with all his might; and then the boy himself set out, with whip in hand, to gather in the farthest scattered of the flock.

The king did his best, and after terrible exertions the cackling runaways were once more congregated on their allotted territory.

But now the boy gave free vent to his indignation, rated the king soundly for neglect, and wound up all by declaring, "Never shall any one get my whip from me again, or tempt me, with two zwanzigers, to give up my geese. No; not to the king himself!"

"You are quite right there, my fine fellow," said the good-natured Maximilian, bursting into a laugh; "he understands goose-herding quite as little as I do."

"And you laugh at it, to the bargain!" said the boy in high dudgeon.

"Well, look ye now," said the monarch, "I am the king!"

"You!" once more reiterated the indignant goose-herd, "I am not such a flat as to believe that—not I. So, lift up your book and get along with you."

The king quietly took up his book, saying, as he handed four additional zwanzigers to the astonished lad, "Don't be angry with me, my boy; I give you my word, I'll never undertake to herd geese again."

The boy fixed a doubting gaze on the mysterious donor of such unexampled treasure, then added, with a wise shake of the head, "You're a kind gentleman, whoever you may be; but you'll never make a good goose-herd!"

* An Austrian coin, value 7d. or 8d. sterling.